

FIGURE 1 (PRIOR ART)

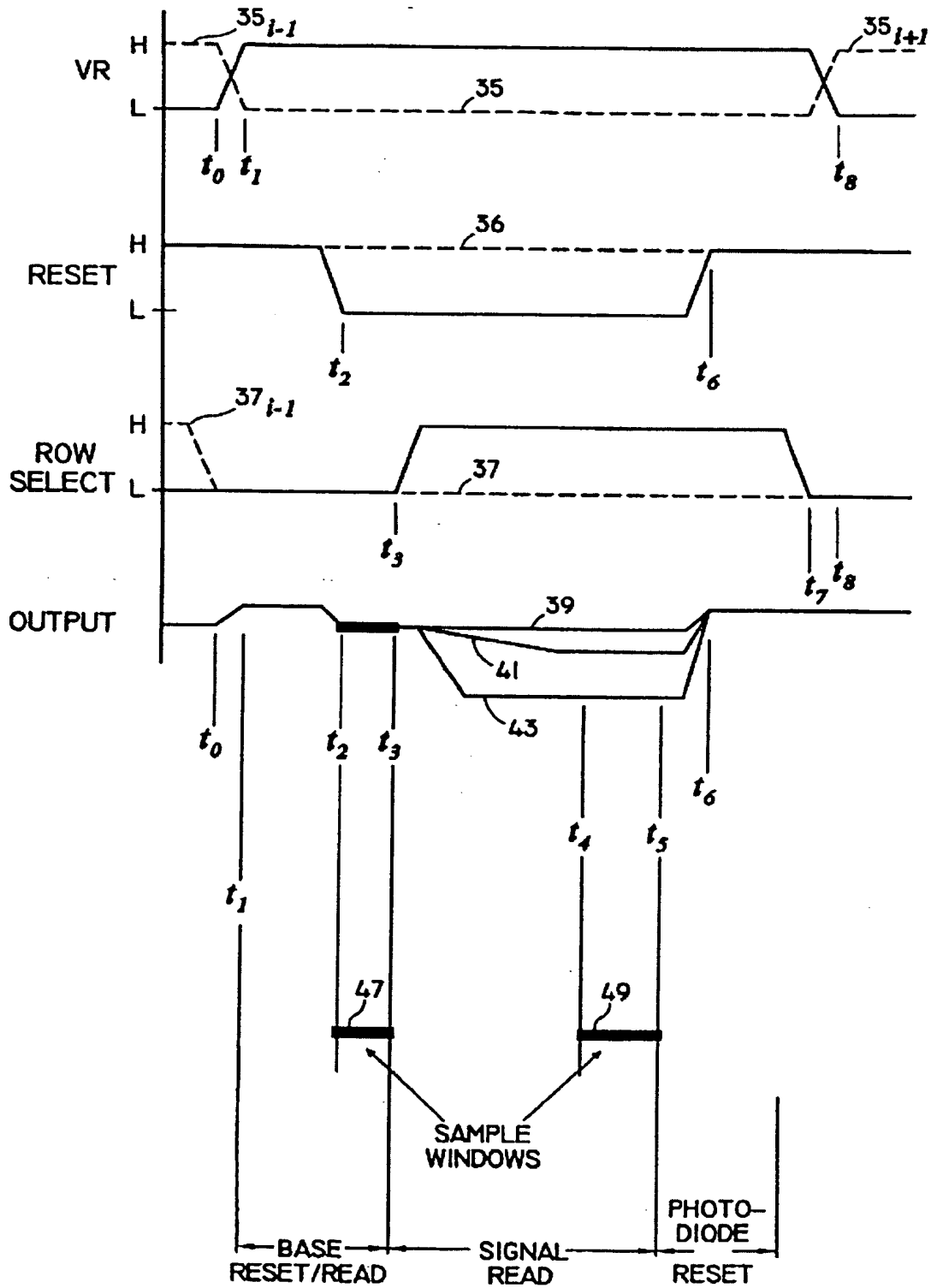


FIGURE 2 (PRIOR ART)

009201" E026960

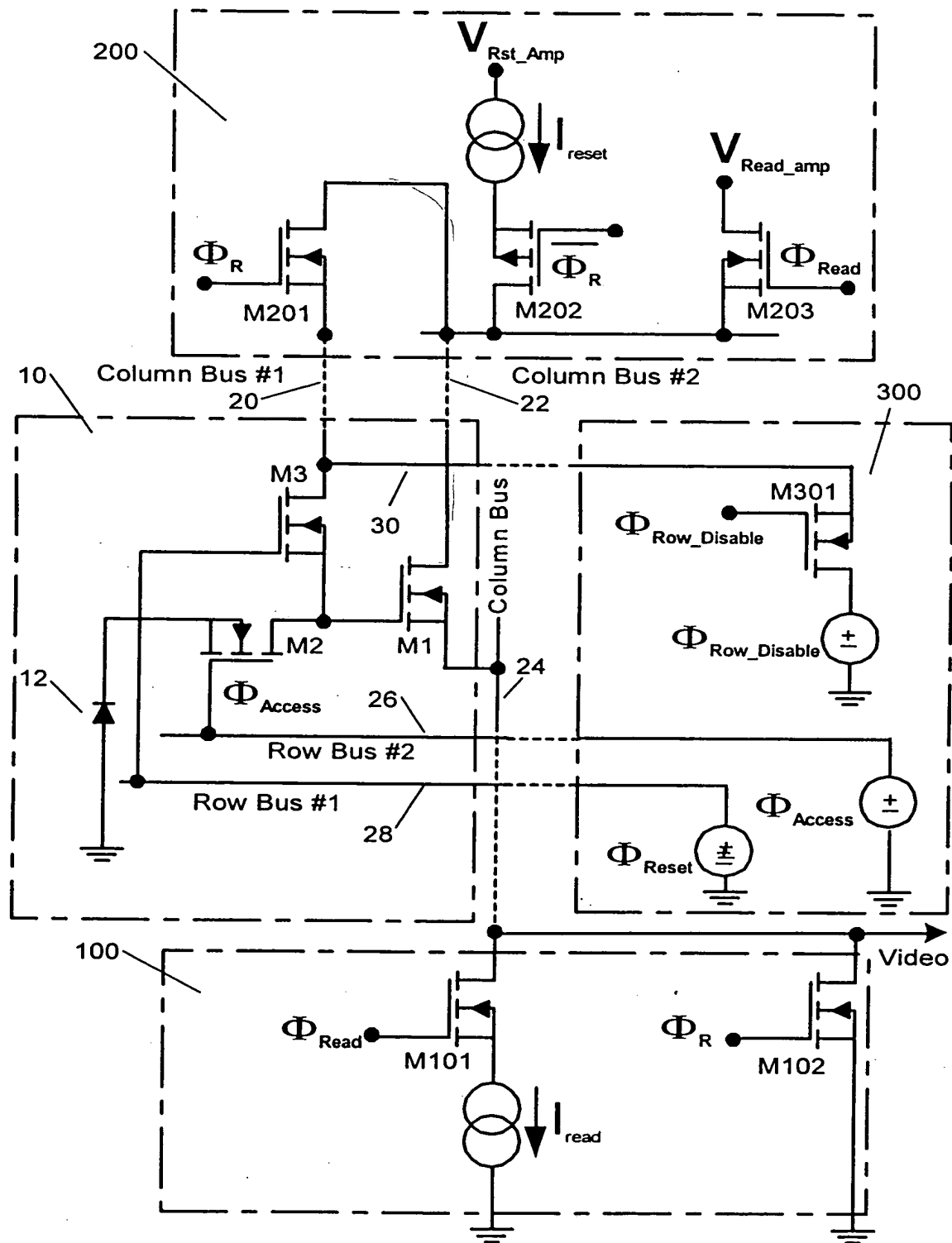


FIGURE 3

009201" E026950

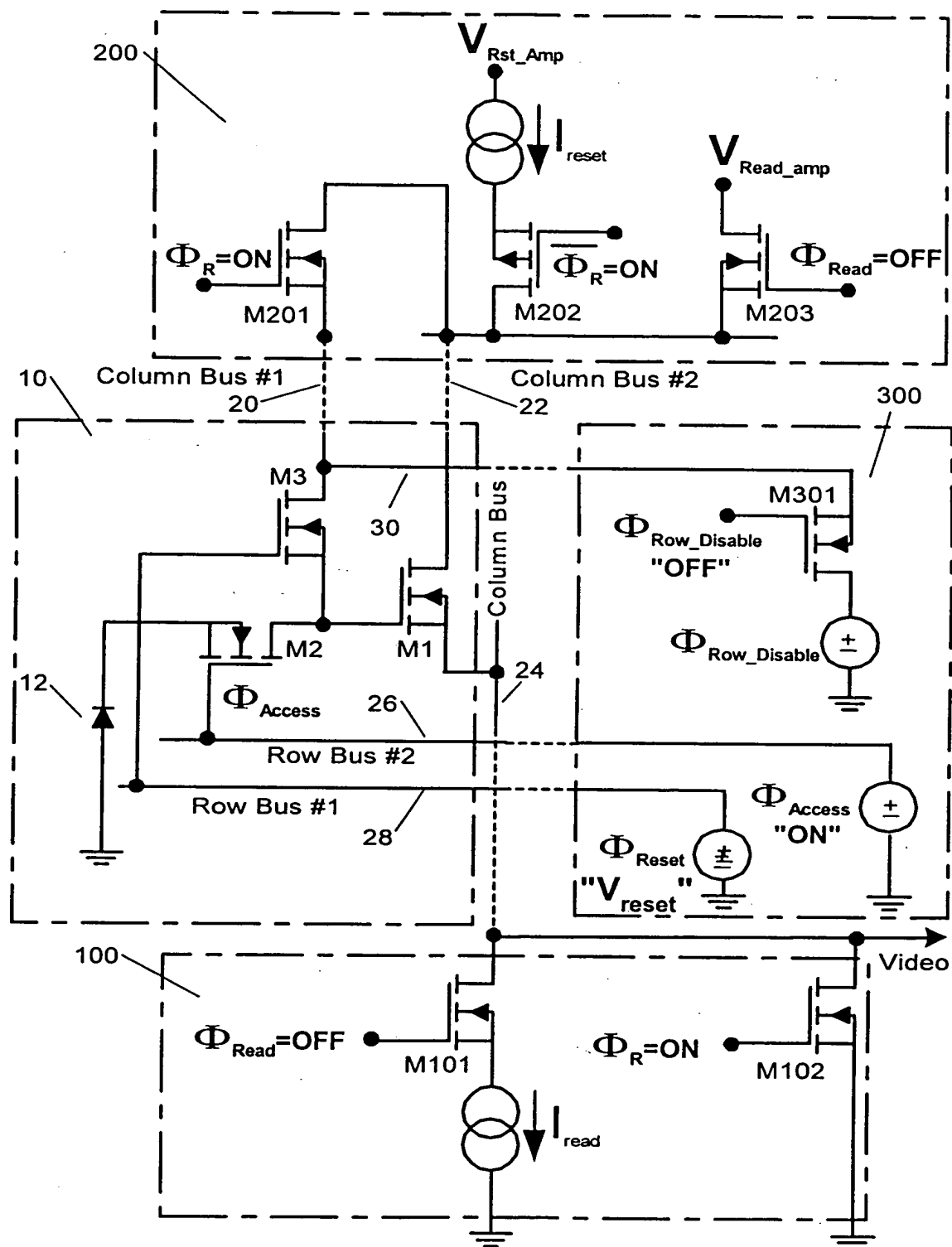


FIGURE 4 (RESET)

09697203 102600

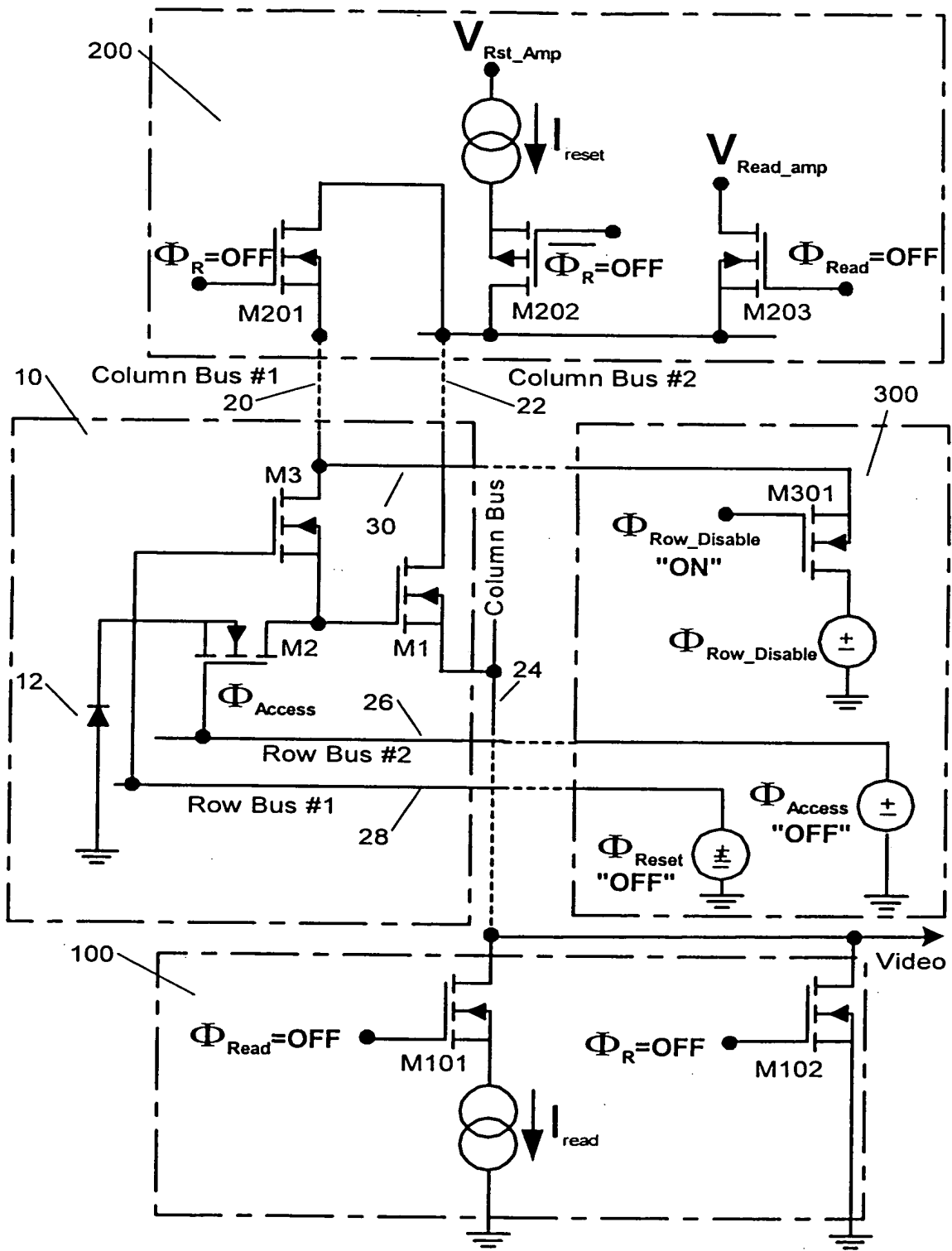


FIGURE 5 (INTEGRATE)

The schematic diagram illustrates a video signal processing circuit, divided into three main functional blocks: 100, 200, and 300.

- Block 200 (Top):** This block contains the input and initial processing stages. It features a reset current source  $I_{reset}$  connected to a node between transistors M201 and M202. Transistor M201 is controlled by  $\Phi_R = OFF$ . Transistor M202 is also controlled by  $\Phi_R = OFF$  and its source is connected to a node between transistors M202 and M203. Transistor M203 is controlled by  $\Phi_{Read} = ON$ . The output of this stage is connected to Column Bus #2 (22).
- Block 100 (Bottom):** This block contains the output stage. It features a read current source  $I_{read}$  connected to a node between transistors M101 and M102. Transistor M101 is controlled by  $\Phi_{Read} = ON$ . Transistor M102 is controlled by  $\Phi_R = OFF$ . The output of this stage is connected to Column Bus #1 (20) and is labeled "Video".
- Block 300 (Right):** This block contains control logic. It includes a Row Disable control circuit with transistor M301 controlled by  $\Phi_{Row\_Disable} = "OFF"$ , connected to a positive supply. It also includes an Access control circuit with transistor M301 controlled by  $\Phi_{Access} = "ON"$ , connected to a positive supply. A Reset control circuit is shown with a transistor controlled by  $\Phi_{Reset} = "OFF"$ , connected to ground.
- Other Components:**
  - Column Buses:** Column Bus #1 (20) and Column Bus #2 (22) are vertical signal lines.
  - Row Buses:** Row Bus #1 (28) and Row Bus #2 (26) are horizontal signal lines.
  - Transistors:** M1, M2, M3, M101, M102, M201, M202, M203, and M301 are various MOSFETs used in the circuit.
  - Diode:** A diode (12) is connected to Row Bus #1 (28) and ground.
  - Current Sources:**  $I_{reset}$  and  $I_{read}$  are current sources providing bias for the input and output stages.
  - Control Signals:**  $\Phi_R$ ,  $\Phi_{Read}$ ,  $\Phi_{Row\_Disable}$ ,  $\Phi_{Access}$ , and  $\Phi_{Reset}$  are control signals that manage the operation of the transistors.

FIGURE 6 (READ)

00920T" E0276960

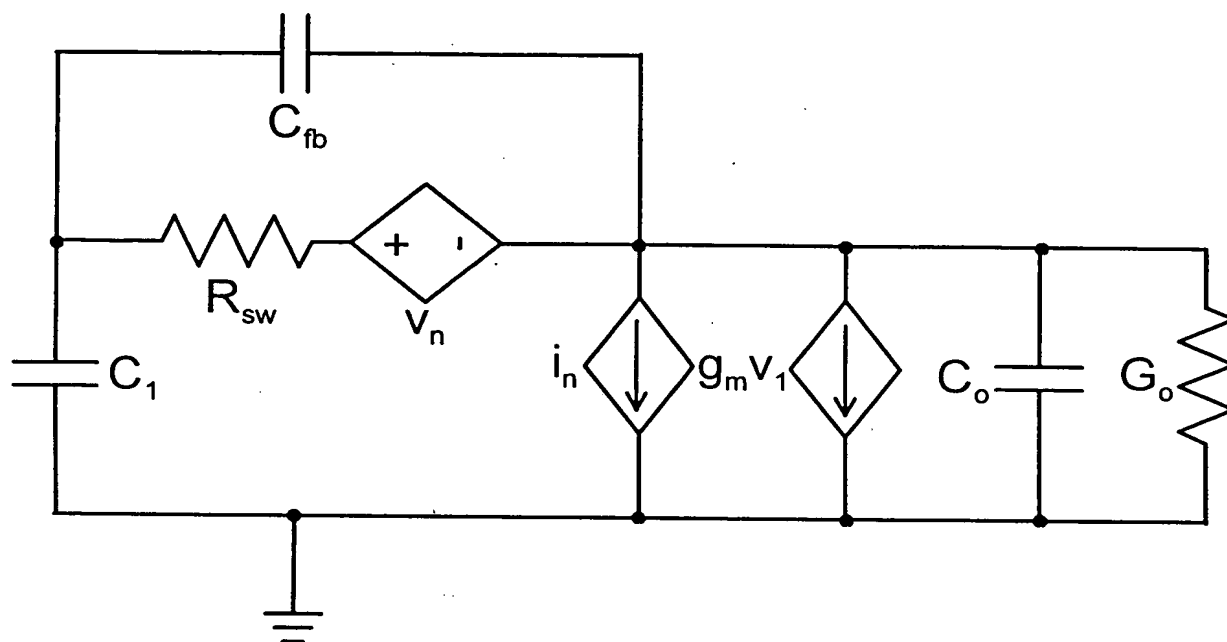


FIGURE 7

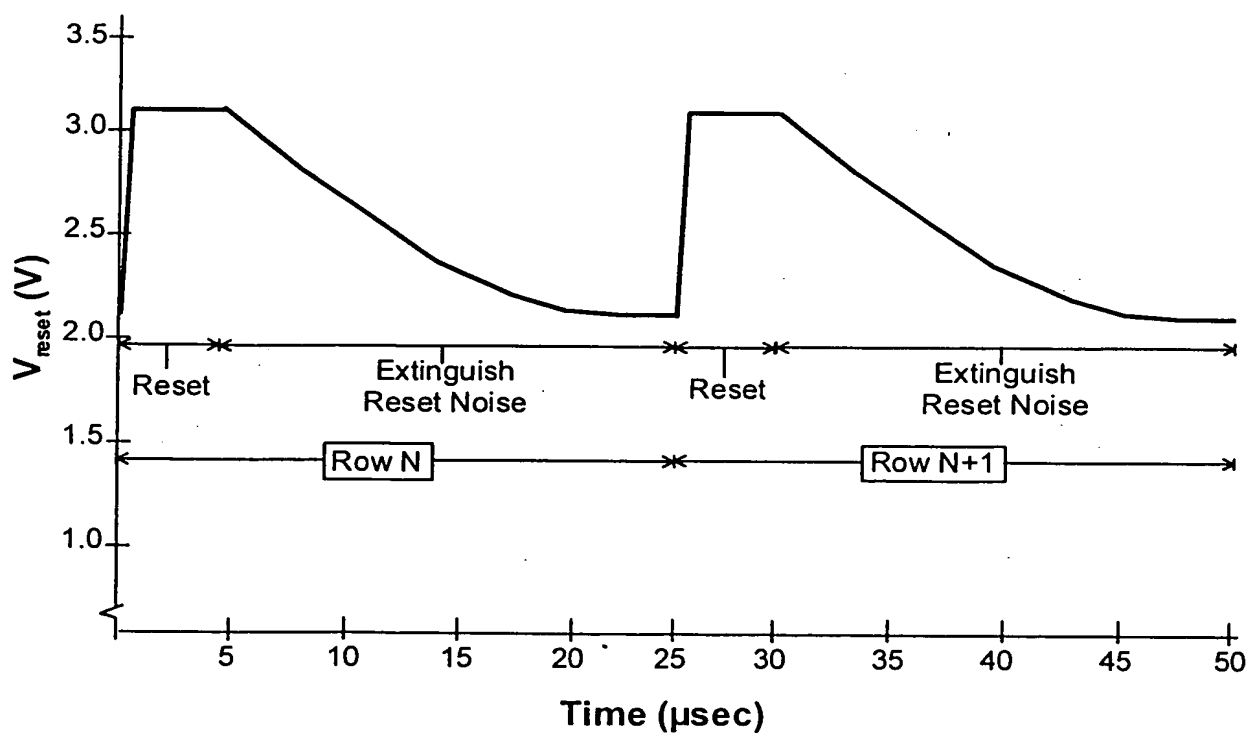
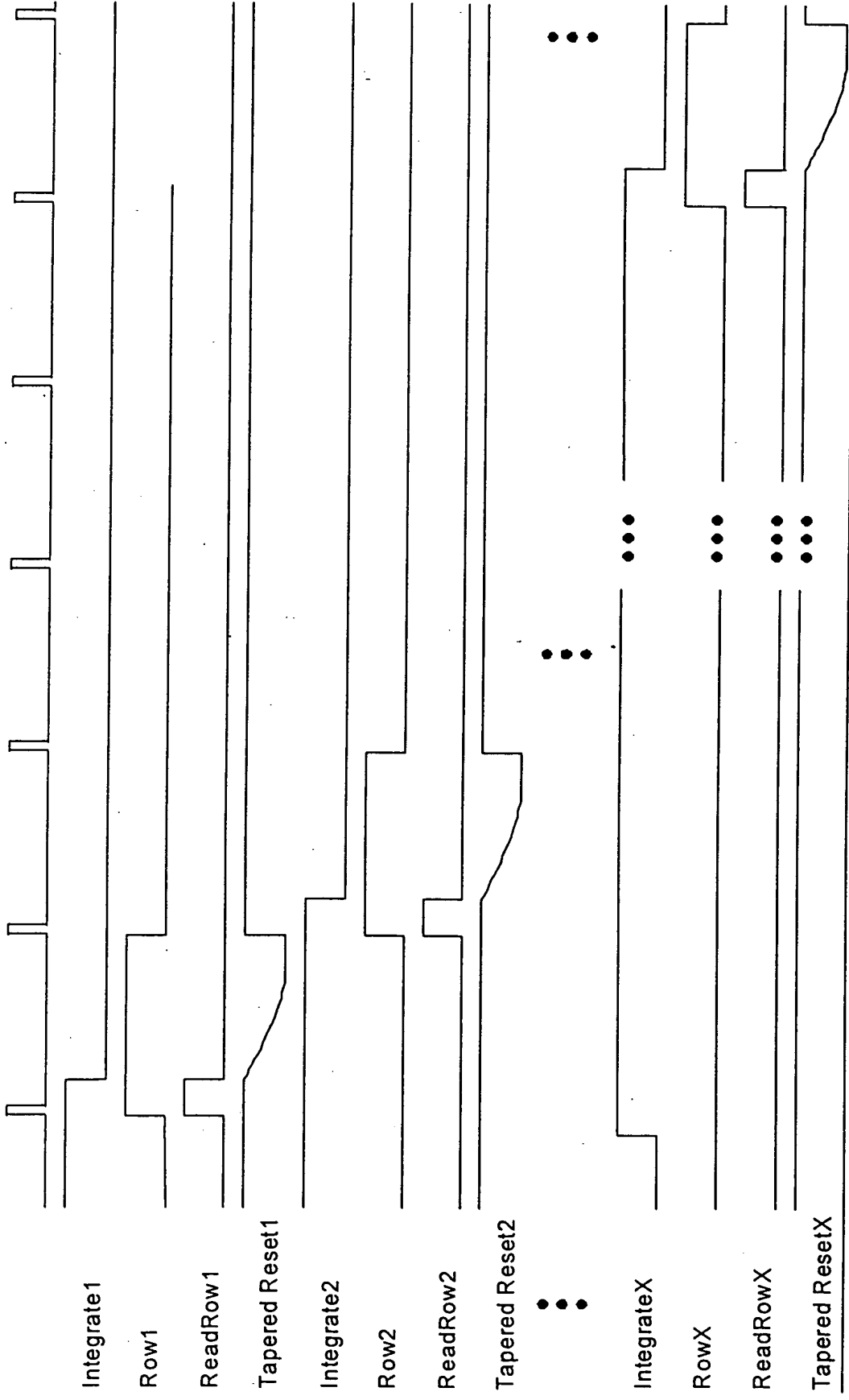


FIGURE 8

*Representative Timing Diagram for X by Y CMOS Imager*



**FIGURE 9**